

Claims

1. A map data transmission method comprising:

determining a recommended route extending from a current position to a destination based upon map data that 5 include road shape information indicating shapes of roads and road connection information indicating conditions with which the roads connect with one another;

extracting map data over a slicing range set within a predetermined distance from the determined recommended route 10 from the map data;

making a decision as to whether or not the road connection information is to be eliminated from the extracted map data; and

transmitting map data obtained by eliminating the road 15 connection information from the extracted map data if results of the decision indicate that the road connection information is to be eliminated.

2. A map data transmission method according to claim 1,

20 wherein:

geographical conditions are set for the map data; and the decision as to whether or not the road connection information is to be eliminated from the extracted map data is made by deciding whether or not the map data satisfy the 25 geographical conditions having been set.

3. A map data transmission method according to claim 2,
wherein:

5 the geographical conditions include an urban area; and
a decision is made to eliminate the road connection
information if the extracted map data are not corresponding
to the urban area.

4. A map data transmission method according to claim 2 or
10 claim 3, wherein:

the geographical conditions include an area with good
GPS reception; and
a decision is made to eliminate the road connection
information if the extracted map data are corresponding to
15 the area with good GPS reception.

5. A map data transmission method according to any of
claims 1 through 4, wherein:

20 if the extracted map data include road data related to
a road which does not connect with the recommended route, a
decision is made to eliminate the road connection information
corresponding to the road data.

25 6. A map data transmission method according to any of
claims 1 through 5, wherein:

a distance from the current position to the destination on the determined recommended route is calculated;

a total data size of the extracted map data is estimated based upon the calculated distance; and

5 a decision is made to eliminate the road connection information if the estimated total data size is greater than a predetermined value.

7. A map data transmission method according to any of
10 claims 1 through 6, wherein:

information indicating that the road connection information has been eliminated is attached to the transmitted map data.

15 8. A map data transmission method comprising:

determining a recommended route extending from a current position to a destination based upon map data that include road shape information indicating shapes of roads and road connection information indicating conditions with which
20 the roads connect with one another;

extracting from the map data map data over a slicing range set within a predetermined distance from the determined recommended route;

making a decision as to whether or not part of the road shape information is to be eliminated from the extracted map data; and

transmitting map data obtained by eliminating part of
5 the road shape information from the extracted map data if results of the decision indicate that part of the road shape information is to be eliminated.

9. A map data transmission method according to claim 8,
10 wherein:

if the extracted map data include road data related to a road which does not connect with the recommended route, a decision is made to eliminate part of the road shape information corresponding to the road data.

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10. A map data transmission method according to claim 8 or claim 9, wherein:

a decision is made to eliminate part of the road shape information included in map data except for map data
20 corresponding to a portion of recommended route which is located on an approaching side to a guidance point on the determined recommended route and within a predetermined distance from the guidance point.

11. A map data transmission method according to any of claims 8 through 10, wherein:

 a distance from the current position to the destination on the determined recommended route is calculated;

5 a total data size of the extracted map data is estimated based upon the calculated distance; and

 a decision is made to eliminate part of the road shape information if the estimated total data size is greater than a predetermined value.

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12. A map data transmission method according to any of claims 8 through 11, wherein:

 information indicating that part of the road shape information has been eliminated is attached to the transmitted map data.

13. An information distribution apparatus that executes a map data transmission method according to any of claims 1 through 12.

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14. An information terminal at which a map is displayed by using map data transmitted from an information distribution apparatus according to claim 13, comprising:

 a reception means for receiving the map data; and

a display means for displaying map data corresponding to the recommended route and map data contained within a specific distance from the recommended route based upon the received map data.

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15. A map data transmission method comprising:

determining a recommended route extending from a current position to a destination based upon map data that include road map data, which contain road shape information indicating shapes of roads and road connection information 10 indicating condition with which the roads connect with one another, and facility data;

extracting road map data over a slicing range set within a predetermined distance from the determined recommended route 15 and also extracting facility data of a facility satisfying a specific requirement from facility data in an area beyond the slicing range based upon the map data; and

transmitting, at least, the road map data extracted over the slicing range, the facility data extracted beyond the 20 slicing range and map data corresponding to a road connecting with the facility.

16. A map data transmission method according to claim 15, wherein:

the road connecting with the facility is an access road connecting the recommended route with the facility and also a return road connecting the facility with the recommended route.

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17. A map data transmission method according to claim 15 or claim 16, wherein:

the facility data of a facility satisfying the specific requirement are data related to a specific type of facility
10 that a user is likely to wish to use while traveling on the recommended route at a specific estimated time point.

18. A map data transmission method according to any of claims 15 through 17, wherein:

15 the specific requirement satisfied by the facility data is an estimated traveling distance, an estimated time point or an estimated geographical position at which a remaining fuel quantity becomes equal to or smaller than a predetermined value while traveling on the recommended route
20 and the facility data extracted when the requirement is satisfied relate to a refueling facility.

19. An information terminal at which a map is displayed by using map data transmitted by adopting a map data

transmission method according to any of claims 15 through 18,
comprising:

a reception means for receiving the map data; and
a display means for displaying road map data within a
5 slicing range containing the recommended route and ranging
within a predetermined distance from the recommended route
and a facility mark corresponding to extracted facility data
based upon the received map data.